



Spleen preserving distal pancreatectomy in isolated pancreatic trauma



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INTRODUCTION: Isolated pancreatic trauma is a rare condition and commonly come up in children or young adults. The poor initial symptoms lead to delay diagnosis and treatment. The treatment of isolated distal pancreatic trauma including the Wirsung's duct is generally distal pancreatectomy. In an emergency setting, splenectomy is a common additional organ resection requirement with the distal pancreatectomy. However, in circumstances, spleen preserving distal pancreatectomy can provide advantages in these age groups even in emergency conditions.

CASE REPORT: Twenty-four-year old male was referred two days after a traffic accident. Acute abdominal findings required laparotomy and preoperative computed tomography revealed a isolated distal pancreatic trauma including the Wirsung. In the hemodynamically stable patient, a spleen preserving distal pancreatectomy (SPDP) was performed uneventfully.

CONCLUSION: Spleen preserving distal pancreatectomy is a beneficial and safe surgical option in isolated distal pancreatic trauma. We propose this surgical procedure for children and young patients, who have good general condition, stable vital findings and without another intraabdominal injury.

KEY WORDS: Distal pancreatectomy, Isolated pancreatic injury, Spleen preservation

Introduction

Isolated pancreatic injury after blunt abdominal trauma is quite rare, and occurs in 1-4% of cases. Unclear initial symptoms and signs may lead to delay diagnosis and treatment. The most important factors that increasing mortality and morbidity are delay in diagnosis and treatment and the presence of duct injury. The main treatment of distal pancreatic injury associated with canal injury is distal pancreatectomy with or without splenectomy¹.

Open or laparoscopic technique can be performed for SPDP. Laparoscopic distal pancreatectomy is as feasible and safe as open technique for benign or malign lesions and also isolated pancreatic injuries. But it requires more experience, that's why it should be performed by practised surgeons²⁻³.

In this study, we aimed to present our data of a young patient who was performed SPDP due to isolated distal pancreatic injury.

Case Presentation

Twenty four years old male patient being folloed up at another center, who had blunt abdominal trauma due to traffic accident two days ago, was referred to our clinic because of ascending abdominal pain and finding of acute abdominal pain on physical examination. Admission in emergency department; his general condition was good and vital findings were stable. Abdominal tenderness and rebound were positive.

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Fig. 1

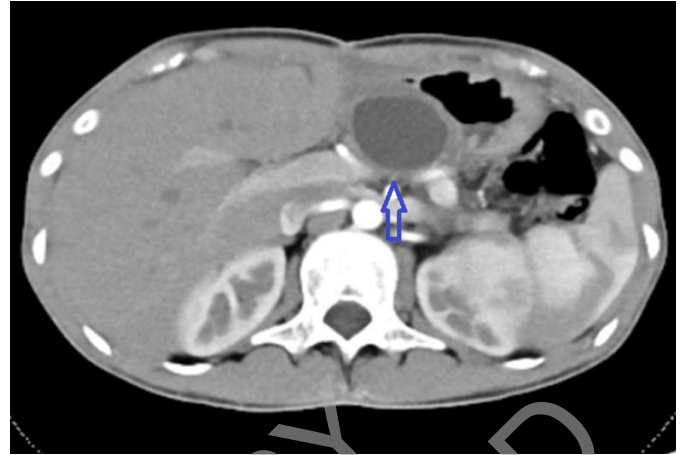


Fig. 4

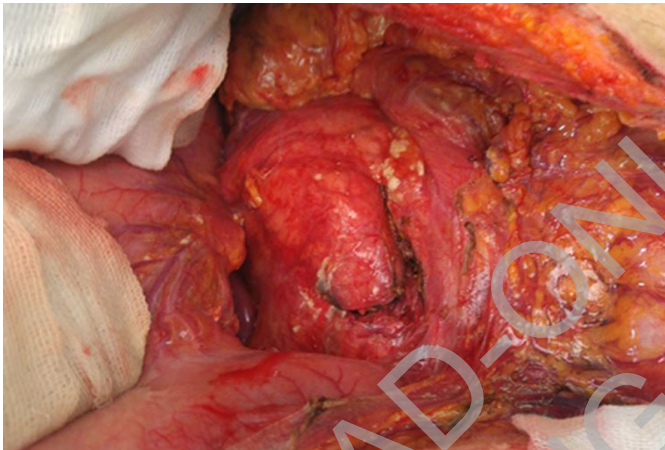


Fig. 2



Fig. 5

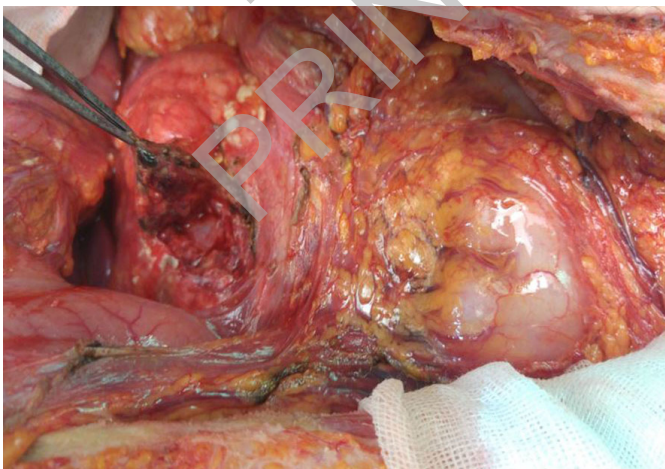


Fig. 3

Multi-dynamic CT (MDCT) showed laceration of the pancreas (Fig. 1). Emergency laparotomy was performed. An isolated distal pancreatic injury, involving the pancreatic duct, was detected in the body of the pancreas (Figs. 2, 3). SPDP was performed with preservation of the splenic vessels. The patient recovered uneventfully and was discharged on postoperative 8th day. On postoperative 2nd month, MDCT was performed and 4x4 cm pseudocyst was detected in the pancreatotomy site (Fig. 4). Any intervention was not considered for asymptomatic cyst on postoperative 4th month, MDCT showed that pseudocyst regressed spontaneous (Fig. 5).

Discussion

Pancreatic injuries rarely occur alone and are often associated with other intra-abdominal injuries. Blunt isolated pancreatic trauma is even rarer and its diagnosis,

detection and treatment still remains a challenge. Physical signs and symptoms are often poor and laboratory findings are non-specific which makes the diagnosis more difficult and easily missed. This delay may result to severe complications with an increase in morbidity and mortality rates⁴⁻⁵. The major complications of pancreatic trauma are; abscess, fistula, pancreatitis, and pseudocyst⁶. The diagnosis of pancreatic trauma is usually challenging. Studies have demonstrated that the elevation of amylase in both serum and peritoneal lavage fluid is neither sensitive nor specific for the diagnosis of pancreatic injury. Bradley, in a review of more than 400 cases reported in literature of blunt pancreatic injury, found that serum amylase levels were elevated in 82% of people with documented pancreatic injuries. Because hyperamylasemia has been observed in more than 75% of patients with blunt abdominal trauma and proven pancreatic injury, it should at least be considered as a sign of probable pancreatic injury in the setting of blunt abdominal trauma and should indicate the need for further testing⁷.

MDCT, which has both sensitivity and specificity as high as 80%, represents the best noninvasive diagnostic method for the detection of pancreatic injury. However, particularly in the initial phase, CT may miss or underestimate the severity of the damage; normal initial findings do not exclude pancreatic injury, and repeated CT in the light of continuing symptoms may improve its diagnostic efficacy⁸.

Magnetic resonance cholangio-pancreatography (MRCP) is a useful tool for the optimal visualisation of Wirsung's duct. MRCP has been demonstrated to be accurate in identifying pancreatic duct lesion in 97% of cases with localised to the head and 83% of cases with injuries localised to the tail⁹.

The morbidity and mortality rates for isolated pancreatic trauma are directly correlated with the presence of damage to the pancreatic duct. It has also been demonstrated that delayed detection of pancreatic duct disruption is correlated with increased incidences of morbidity and mortality. Endoscopic retrograde cholangio-pancreatography (ERCP) is the most accurate method for detecting pancreatic duct trauma in physiologically stable patients, which is indicated by the extravasation of contrast medium from the pancreatic duct system¹⁰.

Management of pancreatic injury is controversial and difficult. For pancreatic injuries, the most commonly-used classification is that proposed by the American Association for Surgery of Trauma (AAST) in 1990 (Table I). Distal pancreatectomy with or without splenectomy, should be performed for distal pancreatic injury associated with Wirsung's duct. SPDP should be considered in all cases especially in haemodynamically stable patients and children. This procedure prevents post-splenectomy infection complication and thromboembolic risk due to hypercoagulation¹¹.

TABLE I - *Pancreatic Organ Injury Scale: American Association for the Surgery of Trauma (AAST)*

Grade	Injury Description
I	Minor contusion or superficial laceration without duct injury
II	Minor contusion or laceration without duct injury or tissue loss
III	Distal transection or parenchymal injury with duct injury
IV	Proximal (right or superior mesenteric artery) transection or parenchymal injury
V	Massive disruption of pancreatic head

He Z. also Lee S.E et al. have showed in their studies that, SPDP can be performed with reducing operative time, blood loss, hospital stay and the risk of post-operative complications^{12,13}.

In another study in China, Tang C.W et al. demonstrated that, there were no significant differences in estimated blood loss, intraoperative transfusion, operative time, and postoperative 30-day mortality between patients who underwent SDPD and distal pancreatic fistula and most importantly lower grade complications, lower incidence of pancreatic fistula, and, most importantly, lower incidence of infection-related complications than distal pancreatectomy with splenectomy. These perioperative results suggest that it is the best to conserve the spleen whenever possible¹⁴.

Shoup et al. reported 211 distal pancreatectomies in 2002. This study showed that, perioperative infectious complications and severe complications were significantly higher in patients undergoing distal pancreatectomy with splenectomy (28 and 11%) than in patients undergoing SPDP (9 and 2%)¹⁵.

Conclusion

The early diagnosis and treatment of pancreatic injuries is often crucial to achieve decent results. The surgeon should be highly alerted in patients with minor abdominal symptoms after blunt abdominal trauma because, delay of diagnosis and treatment lead to increase morbidity and mortality. As our patient who is young, haemodynamically stable and has an isolated pancreatic rupture without another intraabdominal injury, we suggest to perform spleen preserving operation for spleen functions. SPDP seems feasible and safe, when performed by experienced surgeons in a dedicated centre.

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